

REPORT OF A CASE OF HÆMOPHILIC KNEE JOINT.  
OPERATION; RECOVERY UNDER THE USE  
OF THYROID EXTRACT.\*

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N. G., a waiter, twenty-two years of age, was referred to me for trouble in his knee, by Dr. Geo. C. Clarke of this city. The family history is negative so far as bleeding is concerned. His mother died when he was an infant; his father and one brother are living and well.

His personal history is that at five years of age he had suppurating inguinal glands, but had none of the diseases of childhood. Cuts or injuries occasioned no greater hæmorrhage than occurs in the ordinary individual. He had during boyhood an attack of nose-bleed continuing daily for several weeks, but without any deleterious effects. Prior to my seeing him, he had two hæmorrhages following biting of the tongue, each of which lasted for about three weeks and left him much exhausted by the loss of blood. The last one of these occurred within the past two years and he was cared for by Drs. Clarke and Page at the German Hospital.

When first seen, in March, 1906, he was extremely anæmic and sallow. He had not had good health for several years and constantly suffered from pain and soreness in his left knee. This trouble began when he was twelve years of age, at which time he fell, injuring the part slightly. Little attention was given it until the third day after the injury, when, following a long walk, the knee became greatly swollen and very painful. After two weeks' confinement in bed, the knee recovered entirely, but at irregular intervals of from one month to one year the joint has been swollen and painful just as after the first injury. Any overuse of the part sufficed to relight the trouble until finally

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tenderness became constant in spots and more especially on the inner side of the patella. Marked enlargement finally occurred and function became impaired. Flexion beyond 60 degrees was impossible but extension was normal and walking was not painful. A slight fall or forced flexion would cause an outbreak of pain and swelling severe enough to put him in bed for two or three weeks. As no history of bleeding was obtained at this time, the condition was considered a chronic synovitis of probable tubercular origin with thickening of the synovial fringes. Local applications of ung. ichthyol and similar remedies were used without benefit. Plaster of Paris was applied for six weeks and the use of the part much restricted, but without appreciable results. An X-ray plate made shortly after coming under observation showed thickening of the soft structures but no apparent alteration of the bony. The condition finally became so troublesome that he was unable to continue his vocation, and operation was advised for the removal of a supposed hypertrophy of the ligamenta alaria just below the patella. He had been taking the Syrupus Ferri Iodidi for several months with some improvement in appearance and general health. He entered the Methodist Hospital on July 17, 1906, and was prepared for operation which was done on the following day. Attention was directed to the attacks of lingual hæmorrhage, but on account of the absence of bleeding in any other portions of the body following cuts, etc., these were considered as due more to the condition of anæmia and the vascularity of the tongue.

The joint was opened by a straight incision on the inner side of the patella. The appearance of the tissues of the joint was striking and totally unlike any I had ever seen. The synovial fringes were found thickened and the ligamenta alaria below the patella were very much hypertrophied. The entire synovium was of a dirty brown or chocolate color. There was no evidence of recent hæmorrhage, but the fringes appeared as if about to undergo sloughing, a condition which is described as characteristic of the hæmophilic joint. The hypertrophied portions were thoroughly excised both on the lateral and on the infrapatellar surfaces. There was but an ordinary amount of bleeding at the time both in the skin incision and within the joint and no ligatures were used though two small vessels were cut in making the opening incision. Six strands of silk-worm gut were used for

drainage of the joint and the incision was closed with the same material for sutures. One of the small vessels cut showed a tendency to bleed and was caught with a suture and easily controlled. The leg was placed upon a posterior straight splint and an ice-cap ordered applied continuously.

July 19.—Wound dressed to-day. Considerable oozing but not more than is frequently seen after similar operation. The drainage was removed and there immediately occurred a gush of blood which continued to flow. The lower suture (which had caught a bleeding vessel) was removed and the vessel began to spurt blood. A pressure bandage was applied and an ice-cap kept on constantly. A few hours later, it was found that bleeding was still present and it was necessary to introduce two stitches to control it. Morph. sulph.,  $\frac{1}{8}$  gr., and atroph. sulph.,  $\frac{1}{150}$  gr., were administered hypodermatically several times during the day to control pain and hæmorrhage.

July 20.—Patient had a bad night. Was very restless and complained much of pain in the knee, describing it as a *pressure*. The knee was greatly distended and very painful. It was surrounded by ice-bags and no bleeding was perceptible from without. He had one grain of codein during the night without benefit. Strych. sulph.,  $\frac{1}{30}$  gr., was given every three hours and iron in the form of Basham's mixture was begun. He also received a high enema of whiskey 1 ounce, ammon. carb., 20 grs., and normal salt solution 6 ounces, because of the exhaustion and weakness. Gradual improvement followed and the leg was not dressed until the twenty-fourth. Calcium chloride, 15 grs., every three hours was begun on the twenty-third and continued for three days and on this date his temperature rose to above 101 degrees.

When the dressings were removed on the twenty-fourth, bleeding began immediately. A probe was gently inserted into the lower end of the incision and the hæmorrhage became profuse. Pressure with the bandage controlled it completely and the ice-bags were continued. On the twenty-sixth the stitches were cut but not removed, and even this caused bleeding which could not be controlled by pressure and it became necessary to introduce two sutures. There was severe and constant pain in the knee and extending to the foot. Sleep was impossible without codein or morphin.

On the twenty-seventh, he was given by mouth 6 ounces of a 10 per cent. solution of gelatin twice daily and on the twenty-eighth the leg and foot were encased in an interrupted plaster splint. Adrenalin solution (1-1000) in 8 minim doses was given every four hours but with no effect upon the hæmorrhage. The influence of the plaster splint was noticeable in the temperature which fell gradually during the following week. The effects of the gelatin upon the clotting of the blood were most marked, the resultant clot forming very rapidly and proving the most firm and elastic that I have ever seen. The escaping blood formed in a clot under the dressings and this could be lifted from its position with ease and handled very freely without breaking. It had much the consistence of gelatin but was slightly more elastic. The gelatin and adrenalin were continued until August 5, and constant oozing was present. The lips of the wound had separated and exposed an unhealthy granulating and bleeding surface. The entire knee was much swollen and the patient's condition was far from encouraging. On this date, thyroid extract in 5 gr. doses three times daily was begun. Immediate benefit resulted, the temperature dropping still further and the bleeding lessening. By the eighth, bleeding had entirely ceased, though there remained serous oozing from the necrotic area of the wound. Pain lessened and the patient began to eat. A blood count made on the eleventh, showed red cells, 4,310,000, white cells 6,720, hæmoglobin 60 per cent. The records of examinations made previously have been lost, but my personal recollection is that the hæmoglobin was as low as 30 per cent a week after the operation.

From this time on the progress was rather rapid and in two weeks the wound had entirely healed and he was walking about on crutches. Strength quickly returned, color became better and he continued to take the thyroid and that alone. On August 27, while eating dinner, he accidentally bit his tongue and free oozing of blood began. Monsel's solution was immediately applied and the bleeding ceased. Repeated hæmorrhages occurred during the ensuing week, but were temporarily checked with Monsel's solution. Aside from this, the patient looked and felt well and had no pain or trouble in the knee. He left the hospital on September 8, seemingly in perfect health. The cast was removed from the knee a few weeks later and he was warned against using

the leg in walking. A small clot or magma was still adherent to the tongue from the action of the Monsel solution, but there was absolutely no bleeding. A short stay at the seashore proved extremely beneficial and he is now following his work as a waiter with perfect comfort to himself. He has not yet regained full use of the joint, though movements to increase flexion have been advised. He is extremely cautious of motion of the part so as not to injure it in any way. Since he was twelve years of age, he has also had slight "rheumatic" pains in his right hip with trifling impairment of function, but as there is no actual disability or interference with his work, nothing has been done for it. The thyroid extract is still continued twice daily and the changed color and appearance furnish the best evidence of its beneficent effects. Two weeks ago, while descending a stairway, he slipped and wrenched the knee, but experienced absolutely no ill-effects from it, which is in marked contrast to the results of a similar injury prior to the time of operation.

An examination of the eye-grounds was made by Dr. C. A. Veasey to determine any possible evidence of change in the vessels of the fundus or the optic nerve. His report is as follows: "Vision, pupillary reactions, fundi, fields and external muscle rotations are normal. No abnormality whatever can be observed in the vessels of the fundi."

The two most widely accredited theories of the location of the cause of hæmophilia are (*a*) that it concerns the coagulability of the blood, and (*b*) that it lies in the tissues of the vessels. Many researches have been instituted to determine if possible which is correct, but failure has attended them thus far. Weil (*La Tribune Médicale*, Jan., 1907) believes that in hereditary hæmophilia there exist incoagulable substances in the blood which may have their origin in various organs, one of which is the liver (Delezenne). Sahli (*Zeitschrift f. klin. Med.*, 1904, vol. lvi, Nr. 3 and 4) believes the coagulation of the blood is at fault, but the cause of it lies in the vessel structures themselves, chiefly the endothelial lining. Weil (*loc. cit.*) publishes the effects of the use of normal serum when injected into a "bleeder." He says, "The treatment with injections of fresh serum, efficient though it may be, has no value in the

permanent cure of the affection. It does not attack the cause and is but an appropriate symptomatic medication. The dose . . . should be from ten to twenty cc. Human serum or the serum of a horse should be taken as they . . . do not give rise to accidents." This is an admission contrary to what he has endeavored to prove and points very strongly to the tissues as the parts at fault. The use of the thyroid extract also adds to this view, as it appears to supply some vital substance to the tissues which is lacking either totally or in part in these cases.

In the case just detailed, the marked change in the appearance of the wound, the healthy color of the granulations, etc., is in thorough accord with the observed action of the thyroid in other conditions. We are forced to admit, however, our ignorance of its mode of action, and until this is known all theories must remain as such, though it is thoroughly justifiable to venture the opinion that the blood is at fault in some instances and the tissues in others, while in still others both are affected.